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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,193	01/08/2001	Chun-Gi You	06192.0155.NPUS00	4881

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EXAMINER
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BREWSTER, WILLIAM M

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/755,193	YOU, CHUN-GI	
	<b>Examiner</b>	<b>Art Unit</b>	
	William M. Brewster	2823	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 and 42-46 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 and 13-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-13, 40 and 42-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10, 13, 40, 42, 44, 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Colgan et al., U.S. Patent No. 6,278,502 B1.

Colgan anticipates, limitations from claim 10: a contact structure of a wire, comprising: in fig. 7, a wire 126 including a conductive material made of an aluminum-based material, col. 5, line 57 - col. 6, line 12; in fig. 6, an inorganic insulating layer 128, covering the wire and having,

limitations from claim 13: wherein the wire has a flat surface, in fig. 7, a contact hole 139, exposing the wire, a conductive layer 130 made of indium zinc oxide, col. 4, line 66 - col. 5, line 11, formed on the insulating layer and contacting the wire through the contact hole;

limitations from claim 11: wherein the contact hole has a shape including rounds or comer, inherently, even the contact hole is drawn with hard lines meeting at a perfect

angle, all etched structures are imperfectly round at the corners at a small enough scale.

Colgan anticipates, limitations from claim 40: in figs. 15, 17, a thin film transistor array panel, comprising: a gate wire including a first conductive layer 110 on an insulating substrate (not shown); a gate insulating layer 112 covering the gate wire; a semiconductor layer 116 formed on the gate insulating layer, col. 4, lines 57-65; a data wire 126 including a second conductive layer on the gate insulating layer and the semiconductor layer;

limitations from claim 42: wherein the surface of the metal containing the aluminum-based material is flat, col. 4, line 66 - col. 5, line 11;

a passivation layer 128, covering the data wire; and a transparent conductive layer pattern 131 directly contacting with and connected to the gate wire through a first contact hole 152 of the gate insulating layer or directly contacting with and connected to the data wire through the passivation layer, wherein the first conductive layer and the second conductive layer includes metal containing an aluminum-based material, col. 5, line 57 - col. 6, line 12;

limitations from claim 44: wherein the transparent conductive layer pattern is made of indium zinc oxide, col. 5, line 57 - col. 6, line 12;

limitations from claims 45, 46: wherein the gate wire includes a gate line, a gate electrode connected to the gate line, and a gate pad which is connected to the gate line and receives a signal from an external circuit, and the data wire includes a data line, a source electrode connected to the data line, in fig. 17, a drain electrode separated from

the source electrode and opposite to the source electrode with respect to the gate electrode, and a data pad that is connected to the data line and receives a signal from an external circuit; not shown in cross-section, but from the top views, wherein the passivation layer further comprises a second contact hole exposing the data pad and a third contact hole exposing the gate pad along with the gate insulating layer, figs. 3-4, col. 1, lines 53-64, figs. 14, 16, col. 5, line 57 - col. 6, line 11;

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-12, 43, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan as applied to claims 10, 13, 40, 42, 44, 45 as above, and further in view of Wolf, V. I, pp. 191-195.

Colgan does not state that the inorganic insulating layer is made of silicon nitride, but Wolf provides for silicon nitride and gives motivation in p. 191, bottom paragraph. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Wolf's process with Colgan's invention would have been beneficial because silicon nitride is nearly impervious barrier to penetration.

Although Colgan does not specify the size of the contact hole, such dimensions may be optimized.

“Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art . . . such ranges are termed ‘critical ranges’ and the applicant has the burden of proving such criticality . . . More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”

In re Aller 105 USPQ 233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmischer 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising there from. Where patentability is to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

### ***Response to Arguments***

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 703-305-5906. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone number for the organization where this application or proceeding is assigned is 703-305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*William M. Brewster*

WB  
20 January 2004